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PNEUMONIA DEATHRATES AMONG INDUSTRIAL POPULATIONS OF AMERICAN STATES AND CANADIAN PROVINCES

More than usual interest attaches to the pneumonia deathrate at this season of the year. March, almost year in and year out, is the month of highest mortality from this disease. In normal years more than one-seventh of the deaths from pneumonia occur in this single month.

High and low pneumonia deathrates are evidently dependent on a combination of causes rather than on any single cause like latitude, altitude, extreme cold or heat, high or low humidity, age distribution of populations, occupation and concentration of certain race stocks with their varying susceptibility to this disease.

That latitude is not a major factor in determining the pneumonia deathrate is shown rather strikingly by comparing the deathrate from pneumonia on the Atlantic and Pacific Coasts. Oregon and Washington on the latter, record, year after year, deathrates from pneumonia that are much below the average, while Pennsylvania, New York, New Jersey and one or two of the New England States (all in approximately the same latitude as Oregon and Washington) register consistently some of the highest rates of all the states. A cold climate where the average humidity is not high seems indeed to operate in favor of low pneumonia mortality. This is shown by the very low pneumonia rates for the Western Provinces of Canada. On the other hand, the low pneumonia mortality of certain states like Florida and Virginia shows definitely that high humidity alone does not bring a high pneumonia deathrate.

There are certain states, contiguous as to geography, which, year after year, show above-average deathrates for pneumonia. The five states of Massachusetts, New York, New Jersey, Pennsyl-

vania and Maryland make up a sort of belt which, with certain reservations, might be termed the pneumonia belt of this country. As a matter of fact it extends into Canada where the provinces of Ontario, Quebec, Nova Scotia and New Brunswick all record very high deathrates from pneumonia. Certain other states in most years, but not invariably, report high pneumonia deathrates. Among them are Rhode Island and Connecticut, in New England; Delaware, West Virginia and the Carolinas in the South Atlantic region, Michigan in the East North Central group of states and Colorado and Utah among the Mountain States.

The table on page 3 shows the mortality from pneumonia among the Industrial policyholders of the Metropolitan Life Insurance Company in each American state and Canadian province. These Industrial policyholders, it should be remembered, live almost altogether in the cities, where they comprise close to a third of the wage-earning population. The relative positions of the several states and provinces might well differ, for the general population, from the order in the table on page 3, particularly for those states where the greater part of the population is rural.

In the year 1927, the highest pneumonia deathrate among white Industrial policyholders was recorded in South Carolina. It must, nevertheless, be said that, while the pneumonia deathrate of insured wage earners in that state has usually been high in past years, the state does not, year in and year out, register the very highest pneumonia mortality. This undesirable distinction unquestionably lies between Maryland and Pennsylvania, which adjoin one another, and which year after year, both in the cities and rural districts, stand at, or near, the maximum with respect to mortality from pneumonia. In Maryland, the high deathrate from this disease, which is always in evidence for Baltimore, is sufficient in itself to raise the mortality for the state as a whole to a high figure. In Pennsylvania, there are, in the industrial population, many thousands of steel and iron workers and coal miners, occupations in which workers seem particularly liable to pneumonia.

In the industrial population of the United States, the lowest broad regional pneumonia deathrate in 1927, was 54.5 per hundred thousand, and was recorded in the West North Central states. This was closely followed by 55.1 for the East North Central and Pacific Coast states. The four Mountain States registered the low rate of 57.3. The highest rate was that for the Middle Atlantic states (76.8), followed by 69.8 for the South Atlantic states. These

Pneumonia (All Forms). Deaths and Deathrates per 100,000 Persons Exposed. By Geographic Division, State and Province. Metropolitan Life Insurance Company, Industrial Department. 1927.

Geographic Division	White		Colored	
	Deaths	Rate per 100,000	Deaths	Rate per 100,000
Total Company	10,581	67.9	3,291	143.4
United States	9,646	66.8	3,272	143.1
New England	1,518	64.6	92	130.0
Maine	94	64.2	†	†
New Hampshire	62	55.4	†	†
Vermont	41	56.2	†	†
Massachusetts	894	69.5	48	143.9
Rhode Island	162	61.9	15	*
Connecticut	265	56.3	29	129.8
Middle Atlantic	4,233	76.8	1,150	181.6
New York	2,213	71.6	473	181.3
New Jersey	668	69.5	201	167.9
Pennsylvania	1,352	92.7	476	188.5
East North Central	1,605	55.1	749	134.9
Ohio	453	55.5	186	158.3
Indiana	163	54.8	108	125.6
Illinois	552	51.1	322	112.3
Michigan	297	65.7	110	196.4
Wisconsin	140	52.5	23	251.1
West North Central	467	54.5	262	116.7
Minnesota	70	52.2	16	181.8
Iowa	49	53.2	19	110.1
Missouri	300	57.0	180	127.0
Nebraska	19	44.2	7	64.4
Kansas	29	47.6	40	87.1
South Atlantic	784	69.8	533	136.2
Delaware	27	53.2	20	85.6
Maryland	311	97.5	102	220.3
District of Columbia	43	40.0	34	92.5
Virginia	76	54.9	103	127.3
West Virginia	70	72.0	29	100.7
North Carolina	97	73.2	55	103.0
South Carolina	52	102.1	48	164.5
South Atlantic (*Continued*)				
Georgia	92	52.3	127	161.2
Florida	16	31.0	15	107.5
East South Central	298	66.3	303	116.6
Kentucky	120	66.3	117	115.1
Tennessee	109	64.7	139	114.5
Alabama	57	67.2	37	106.6
Mississippi	12	80.3	10	*
West South Central	130	57.8	108	152.6
Arkansas	18	41.3	9	49.0
Louisiana	80	57.3	87	189.5
Oklahoma	32	76.3	12	184.5
Mountain	99	57.3	15	125.5
Montana	22	54.0	1	*
Idaho	8	55.5	†	†
Colorado	22	46.6	13	139.6
Utah	47	66.8	1	*
Pacific	469	55.1	52	75.3
Washington	66	43.5	5	74.0
Oregon	30	50.6	3	168.4
California	373	58.3	44	72.8
Canada	935	81.9	19	235.8
Eastern Provinces	874	88.3	17	*
Nova Scotia	43	90.2	7	*
New Brunswick	29	92.4	2	*
Quebec	538	99.8	3	*
Ontario	264	71.1	5	*
Western Provinces	59	44.5	†	†
Manitoba	19	51.1	†	†
Saskatchewan	10	54.7	†	†
Alberta	6	26.2	†	†
British Columbia	24	44.2	†	†

*Deathrate not calculated on account of small number of colored policyholders. †No deaths.

are the only two groups to register pneumonia deathrates in excess of the average for the insured wage earners throughout the United States. The pneumonia rates in New England and the East South Central region are very close to the average for the country.

The pneumonia deathrate among Canadian policyholders in 1927 was 81.9 per hundred thousand, which is much higher than for the United States (66.8). This is due, entirely, to the very high deathrates in the Eastern provinces of Quebec, New Brunswick and Nova Scotia.

The foregoing discussion relates exclusively to white policyholders. In every state, the pneumonia deathrate is very much higher among colored persons, as is clearly shown in the table on page 3.

OVER ONE HUNDRED MILLIONS PAID IN DEATH CLAIMS TO METROPOLITAN BENEFICIARIES DURING 1927

The Metropolitan Life Insurance Company during 1927 paid to families and other beneficiaries of decedents nearly one hundred and one millions of dollars. The amounts paid on deaths resulting from the principal causes are shown in the table on page 6.

As has been the case for the three latest years, the principal cause of death from the standpoint of the number of deaths as well as of money disbursed, was organic heart disease. Nearly fourteen millions of dollars, or 14.3 per cent. of the total death claim payments was on account of heart disease. The two other principal "degenerative" diseases, chronic nephritis (Bright's disease) and cerebral hemorrhage (apoplexy) were jointly responsible for disbursements exceeding thirteen millions of dollars, thus bringing the total claim payments for the three principal "degenerative" conditions (which often exist concurrently) to more than twenty-seven millions or considerably in excess of one-quarter of the total sum disbursed.

Next in importance to heart disease was "external causes" which, translated into everyday parlance, means violence of either accidental, suicidal or homicidal origin. More than thirteen millions were disbursed on account of these violent deaths, divided approximately into ten millions for accidents, two millions for suicides and one million for homicides. That violent deaths are a matter of grave concern to all life insurance companies is obvious when one considers that this company paid out more than one dollar out of every eight disbursed last year on account of such claims.

Among the various types of fatal accidents, those arising out of

motor vehicle traffic are the most important, both from the standpoint of the number of deaths and the amount of the death claims. Only seven years ago the sum disbursed for automobile fatalities was $580,000, or less than one-fourth that paid out last year ($2,581,330). Since 1920 the actual deathrate for this cause has increased 67.6 per cent. With the deathrate rising continuously for a long period of years, and with early returns for 1928 presaging still another increase this year, automobile fatalities bid fair to become even more important. The increase in the deathrate for accidental drownings in 1927 was reflected in a rise in the sum disbursed from $726,000 in 1926 to $1,100,000 in 1927.

Tuberculosis was third in importance, with claim payments of more than ten millions of dollars, or ten and one-half per cent. of the total. The sum of money disbursed for tuberculosis was about $200,000 more than during 1926, despite the fact that the deathrate in 1927 declined to the lowest figure ever recorded among Metropolitan policyholders. The per cent. of the total paid out for tuberculosis, however (10.5), shows a decline from 10.9 in 1926 and may be compared with 11.2 in 1925 and 14.3 in 1920.

Cancer was fourth in importance with more than nine millions of dollars disbursed—9.4 per cent. of the total. That cancer is a more important item in life insurance budgets than at the beginning of the present decade is shown by comparison with 1920, when only eight per cent. of the total amount disbursed was paid on account of deaths from malignant growths.

Influenza and pneumonia were jointly responsible for claim payments amounting to nearly nine millions of dollars, or nine per cent. of the total disbursements. This is an improvement over recent years due, largely, to the fact that epidemic influenza, in the virulent form which runs quickly into fatal pneumonia, was not prevalent in the United States or Canada to any considerable extent during 1927. The pneumonia deathrate last year was the lowest ever recorded.

Diseases incidental to pregnancy and childbirth were responsible, in 1927, for death claims in the sum of $1,354,000, which is 1.4 per cent. of that paid out for all causes by the Company. This per cent. would, of course, be much higher for claims paid on female lives alone.

It is important to observe that the acute communicable diseases of children and young adults have become relatively so unimportant in the picture of current mortality that they are, with a few ex-

ceptions, not thought worthy of inclusion in the list which follows. Where there is a definite programme of control of mortality, there, mortality declines with the consequent decreases in the amounts paid in death claims. It is only where medical science is still puzzled as to procedure that the number of deaths and disbursements on death claims are mounting. As we have pointed out on previous occasions, it pays well to spend money and effort to discover ways of checking disease.

Disbursements for Specified Causes of Death, 1927. Metropolitan Life Insurance Company.

Diseases or Conditions	Amount*	Per Cent. of Total	
		1927	1926
All Causes of Death	$97,789,364	100.0	100.0
Typhoid fever	520,750	.5	.5
Diphtheria	201,848	.2	.2
Influenza-pneumonia combined	8,793,704	9.0	10.8
Influenza	1,788,076	1.8	3.0
Pneumonia—All forms	7,005,628	7.2	7.8
Tuberculosis—All forms	10,223,598	10.5	10.9
Tuberculosis of resp'y system	9,434,055	9.6	10.1
Cancer—All forms	9,229,188	9.4	9.1
Cerebral hemorrhage; apoplexy	5,870,825	6.0	5.8
Diseases of the heart	13,947,166	14.3	14.0
Chronic nephritis	7,359,406	7.5	7.4
Puerperal state	1,353,679	1.4	1.4
Total external causes	13,001,958	13.3	12.4
Suicides	2,168,526	2.2	2.1
Homicides	1,160,112	1.2	1.0
Accidents	9,673,320	9.9	9.3
Accidental drowning	1,096,054	1.1	.8
Traumatism by fall	1,029,850	1.1	1.1
Railroad accidents	860,426	.9	.9
Automobile accidents	2,581,330	2.6	2.3
Other accidents	4,105,660	4.2	4.3
All other causes of death	27,287,242	27.9	27.3

*Total death claim disbursements (inclusive of additional accidental death benefits) $100,776,031. Above tabulation does not include death claim payments on policies lapsed for non-payment of premiums.

RELATION OF THE DEATHRATE FROM SCARLET FEVER TO THE PREVALENCE OF THE DISEASE

That the type, or the virulence of a disease may determine its deathrate to a much greater extent than does its mere prevalence, is shown rather strikingly by the facts for scarlet fever for the year 1927.

Among the policyholders of the Metropolitan Life Insurance

Company the deathrate for this disease last year declined to three per 100,000, the lowest ever recorded by a considerable margin. Nevertheless, figures recently published by the UNITED STATES PUBLIC HEALTH SERVICE show that in 37 states (which are presumably typical of conditions in the entire country) there were nearly 16,000 more cases of scarlet fever reported in 1927 than during 1926 and 23,000 more than in 1925. Among Metropolitan Industrial policyholders, who constitute more than one-seventh of the total population, and who are represented in every state, the scarlet fever deathrate declined 12 per cent. in 1927 over the figure for each of these two years, notwithstanding the increase of cases of this disease, in the general population, of 11 per cent. over 1926 and 17 per cent. over 1925.

THE CURRENT EXPECTATION OF LIFE IN THE UNITED STATES

In the September, 1927, STATISTICAL BULLETIN it was shown that, among the policyholders of the Metropolitan Life Insurance Company, the expectation of life, as computed from the mortality statistics for the year 1926, showed a loss of about one-half year as compared with the corresponding figure for the year 1925. We are now in a position to make a similar comparison for the general population on the basis of the data published by the UNITED STATES BUREAU OF THE CENSUS, relating to the Death Registration States (as constituted in 1920).

The general picture presented in the table on page 8 corresponds precisely to the impression obtained from the data relating to our policyholders. The year 1926 was less favorable than the preceding year. At birth there was a recession of about one-half year in the expectation of life. It seems hardly necessary to repeat here the remarks offered in presenting the corresponding figures for Metropolitan policyholders. A slight set-back such as this must not be viewed with solicitude. Figures are bound to fluctuate from year to year, and an occasional diminution in the expectation of life in one particular year is by no means incompatible with a systematic general up-trend over a more extended period. Furthermore, though we cannot, as yet, make any report in terms of expectation of life for the year 1927, we know from the deathrates themselves that it was an exceptionally favorable year and will establish a new record when the expectation of life comes to be computed.

Expectation of Life, in Years, 1926 and 1925 in United State Registration States as Constituted in 1920. By Sex

AGE	TOTAL			MALES			FEMALES		
	1926	1925	Loss 1926-1925	1926	1925	Loss 1926-1925	1926	1925	Loss 1926-1925
0	57.74	58.20	.46	56.51	56.96	.45	59.09	59.57	.48
7	56.42	56.84	.42	55.64	56.07	.43	57.29	57.71	.42
12	51.87	52.31	.44	51.14	51.58	.44	52.69	53.15	.46
17	47.42	47.89	.47	46.72	47.19	.47	48.22	48.69	.47
22	43.27	43.76	.49	42.56	43.05	.49	44.07	44.56	.49
32	35.03	35.56	.53	34.29	34.82	.53	35.89	36.40	.51
42	27.04	27.57	.53	26.33	26.86	.53	27.85	28.37	.52
52	19.57	20.04	.47	18.97	19.43	.46	20.23	20.72	.49
62	13.00	13.39	.39	12.55	12.93	.38	13.48	13.89	.41
72	7.95	8.27	.32	7.65	7.96	.31	8.26	8.59	.33
82	4.45	4.65	.20	4.33	4.51	.18	4.56	4.77	.21
92	2.55	2.66	.11	2.57	2.67	.10	2.55	2.69	.14

THE COMPLETION OF THE REGISTRATION AREAS

It is very gratifying to report that the prediction that the registration areas for births and deaths will be completed by 1930 is in the way of fulfillment. An extraordinary development in this direction has taken place in the few years since this matter was last discussed in these BULLETINS,

In 1925 the Death Registration Area comprised forty states and included only 89.4 per cent. of the population. It now includes forty-three states with 93 per cent. of the total population. Of the five states still outside, two have recently passed satisfactory registration laws (Oklahoma and Texas). Of these two, it is confidently expected that Oklahoma will soon be admitted. The very large State of Texas is making rapid progress in this direction, as is also New Mexico. South Dakota and Nevada are the only states which are still without satisfactory laws for death registration and all possible effort is being put forth to secure the needed legislation for them.

In 1925, the Registration Area For Births comprised only thirty-three states and 76 per cent. of the population. Since that year, eight have been admitted, bringing the total up to forty-one states and close to 90 per cent. of the total population. It is confidently expected that South Carolina, Oklahoma and Colorado will soon be admitted, with New Mexico and Texas following somewhat later.

South Dakota and Nevada, as is the case for death registration, are the only states now lacking efficient and workable laws.

The UNITED STATES BUREAU OF THE CENSUS is more active than ever in cooperating with the state authorities to bring to a close the campaign of three decades to secure the complete registration of births and deaths for the country as a whole. In this campaign the state authorities are cooperating to the full, as are also a number of voluntary agencies representing national associations, and, more especially, the AMERICAN PUBLIC HEALTH ASSOCIATION, through its committee on this subject.

HEALTH RECORD FOR JANUARY, 1928

Health conditions among the Industrial policyholders during the first month of 1928 were, in general, favorable. The very low deathrate for January of 9.4 per thousand was substantially the same as registered for the opening month of 1927.

Among the epidemic diseases of childhood, measles, scarlet fever and diphtheria registered slightly higher deathrates than in January, 1926. The small increases for measles and scarlet fever are of little significance as the rates for both years are very low. With respect to diphtheria, the increase is important. It will be recalled that, after registering a continuous drop for five years, the diphtheria deathrate increased in 1927; and, in view of this increase, those who have been most actively concerned in pushing the campaign for immunization against diphtheria are watching developments for the early months of 1928 with keen interest. The further increase, early this year, may well presage another rise in the mortality from this disease for 1928. Hence, the January rate of 14.8 per hundred thousand, as compared with 13.6 for January, 1927, is not encouraging. The situation calls for careful study of the diphtheria mortality data of 1927 and 1928, by place of death, to determine whether or not the increase was in evidence in communities where an active immunization campaign has been carried on.

More or less noteworthy increases, as compared with January, 1927, are shown in the deathrates for tuberculosis, cancer, diabetes and the three principal "degenerative" diseases—heart disease, cerebral hemorrhage and chronic nephritis. The mortality from influenza declined slightly, and that for pneumonia appreciably.

In the field of deaths from violence, the rate for suicides declined slightly and that for homicides increased considerably, as compared

with January, 1927. The figure for all accidents combined showed virtually no change.

As noted in the January STATISTICAL BULLETIN, the automobile fatality situation continues to go from bad to worse; but never before has a year opened as inauspiciously as has 1928. This is the situation, and there is no comfort in it: Following a rise in the mortality, in 1927, to the highest figure ever recorded for any year, there was registered in January, 1928, the unprecedented deathrate, for that month, of 16.1 per hundred thousand. This has never been even approached in any previous January, the former maximum being 13.6 in January, 1926. The actual number of lives lost among the Industrial policyholders in this month was 247.

The general deathrate for the large cities of the United States in January was 13.6 per thousand. This was higher than the rate for the previous month (12.8), but a little lower than that for January, 1927 (14.0). As compared with December, 1927, there was increased prevalence of influenza, measles, scarlet fever and smallpox with fewer cases reported of diphtheria, poliomyelitis and typhoid fever. Comparison with January, 1927, shows more diphtheria, influenza, measles, poliomyelitis and smallpox cases, but lower morbidity from scarlet fever and typhoid fever.

Diphtheria cases, as compared with December, increased very noticeably, particularly in Alabama and Mississippi. The remarkable record made in Auburn, New York, of no deaths from diphtheria since March, 1924, was broken in January by the death of a six-year old child. It is reported, however, that this child had not been inoculated against diphtheria, and that antitoxin was not given until two days after the physician had made his first call.

The number of reported influenza cases in January was considerably higher than in December, with the more noticeable increases in South Carolina, Alabama and Oklahoma. More than double the number of measles cases was reported than for December. Case reports increased particularly in New York, North Carolina and Tennessee.

The following table shows the mortality among the Industrial policyholders for January, 1928; December, 1927; January, 1927, and the year 1927.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF JANUARY, 1928; DECEMBER, 1927, AND OF JANUARY, 1927

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*			
	Jan. 1928	Dec. 1927	Jan. 1927	Year 1927†
TOTAL—ALL CAUSES	944.9	866.0	928.2	885.4
Typhoid fever	1.8	2.8	2.4	4.6
Measles	3.8	2.0	3.6	4.1
Scarlet fever	3.6	2.5	3.0	3.1
Whooping cough	4.3	3.7	6.9	6.4
Diphtheria	14.8	14.3	13.6	10.5
Influenza	25.4	17.7	26.1	17.7
Tuberculosis (All forms)	84.8	84.0	80.2	93.3
Tuberculosis of resp'y system	74.2	74.1	69.2	81.7
Cancer	74.3	73.0	72.7	74.0
Diabetes mellitus	19.0	18.1	17.1	16.7
Cerebral hemorrhage	59.4	56.0	57.8	54.9
Organic diseases of heart	150.7	135.3	146.5	132.2
Pneumonia (All forms)	111.2	83.5	118.5	77.6
Other respiratory diseases	18.9	16.4	14.9	15.4
Diarrhea and enteritis	13.0	16.1	14.1	24.5
Bright's disease (Chronic nephritis)	79.4	65.7	72.3	69.3
Puerperal state	13.7	12.3	13.8	15.4
Suicides	7.4	7.2	7.6	8.3
Homicides	6.2	6.6	5.8	7.2
Other external causes (excluding suicides and homicides)	62.4	59.9	61.8	63.7
Traumatism by automobiles	16.1	16.5	12.8	18.3
All other causes	190.9	189.0	189.5	186.7

*All figures include infants insured under one year of age.
†Based on provisional estimate of lives exposed to risk in 1927.

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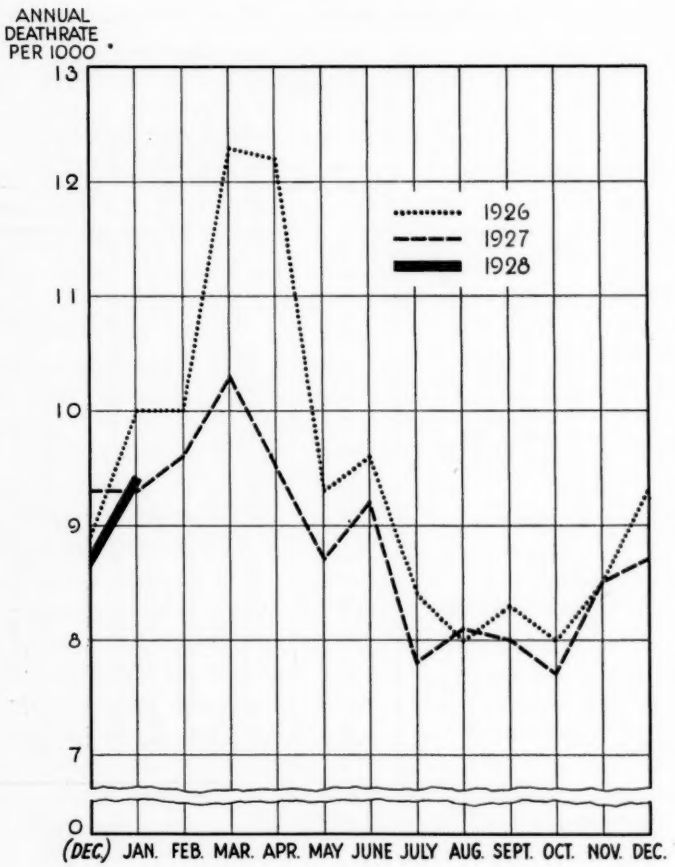
Deathrates from All Causes

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT



1926	10.0	10.0	12.3	12.2	9.3	9.6	8.4	8.0	8.3	8.0	8.5	9.3
1927	9.3	9.6	10.3	9.5	8.7	9.2	7.8	8.1	8.0	7.7	8.5	8.7
1928	9.4											

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